

AMENDMENTS TO THE CLAIMS

1-17. (Canceled)

18. (Withdrawn) A semiconductor light emitting device comprising:

an n-type clad layer consisting of a gallium nitride based compound semiconductor;

an active layer consisting of a gallium nitride based compound semiconductor, said active layer being made from a material having a band gap energy smaller than that of said n-type clad layer;

a p-type clad layer consisting of a gallium nitride based compound semiconductor, said p-type clad layer being made from a material having a band gap energy greater than that of said active layer, and sandwiching said active layer accompanying with said n-type clad layer.

19. (Withdrawn) A semiconductor light emitting device comprising:

a substrate; and

GaN-type compound semiconductor layers stacked on the substrate, the GaN-type layers including:

at least one active layer,

at least one n-type layer, and

at least one p-type layer;

wherein a band gap energy of the one n-type layer is smaller than a band gap energy of the one p-type layer.

20. (Canceled)

21. (Canceled)

22. (Currently Amended) A method for producing a light-emitting semiconductor device of a group III nitride compound, comprising:

forming an N-layer of an N-type conduction, said N-layer comprising gallium nitride;
forming an emission layer of a group III nitride compound semiconductor satisfying the formula, $Al_{x1}Ga_{y1}In_{1-x1-y1}N$, where $0 \leq x1 \leq 1$, $0 \leq y1 \leq 1$, and $0 \leq x1+y1 \leq 1$, on said N-layer;
forming a P-layer of a P-type conduction, on said emission layer, said P-layer comprising aluminum gallium nitride satisfying the formula, $Al_{x2}Ga_{1-x2}N$, where $0 < x2 < 1$; and
forming a contact layer of a P-type conduction, on said P-layer, said contact layer comprising gallium nitride;
forming a hole and a groove extending from said contact layer to said N-layer;
forming a first electrode on a top surface of said contact layer; and
forming a second electrode on an upper exposed surface of said N-layer in said hole.

23. (Previously Presented) The method for producing a light-emitting semiconductor device according to claim 22, wherein said emission layer is doped with acceptor and donor impurities.

24. (Previously Presented) The method for producing a light-emitting semiconductor device according to claim 22, wherein said contact layer of said P-type conduction is formed between said P-layer and an electrode.

25. (Canceled)

26. (Previously Presented) A method of producing a light-emitting semiconductor device of a group III nitride compound, comprising:

forming an N-layer of an N-type conduction, said N-layer comprising gallium nitride;
forming an emission layer of a group III nitride compound semiconductor satisfying the formula, $Al_{x1}Ga_{y1}In_{1-x1-y1}N$, where $0 \leq x1 \leq 1$, $0 \leq y1 \leq 1$ and $0 \leq x1+y1 \leq 1$, on said N-layer;
forming a P-layer of a P-type conduction, on said emission layer, said P-layer comprising aluminum gallium nitride satisfying the formula, $Al_{x2}Ga_{1-x2}N$, where $0 < x2 < 1$;
forming a contact layer of a P-type conduction, on said P-layer, said contact layer

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comprising gallium nitride; and

doping Si into said N-layer and Mg into said P-layer, so that a potential barrier of a valence band of said N-layer is lower than a potential barrier of a conduction band of said P-layer during conduction.